

REMARKS/ARGUMENTS

Claims 1-81 were pending. Within the Office Action, claims 1-3, 5-6, 8, 15, 16, 20, 30, 34-37, 39, 40, 42, 49, 59, and 62 are rejected under 35 U.S.C. § 102(b); and claims 7, 9-14, 17-19, 41, and 43-48 are rejected under 35 U.S.C. § 103(a). Claims 4, 25, 26, 31, 32, 38, 54, 55, 60, 61, and 66-81 were previously withdrawn.

By way of the above amendments, claims 1, 21, 28, 29, 35, 50, and 57 have been amended, and claims 27 and 56 have been canceled. Accordingly, Claims 1-26, 28-55, and 57-81 are now pending. The Applicants respectfully request further examination and reconsideration in view of the amendments made above and the arguments set forth below.

Substance of 29 March 2006 Interview

On 26 March 2006, the Applicants' attorney and the Examiner held an interview to discuss the claims then under consideration, claims 1-3, 5-24, 27-30, 33-37, 39-53, 56-59, and 62-65. The Examiner stated that the rejected claims would distinguish over the cited prior art if they were amended to include the limitation, a "heat generating device coupled to a bottom surface of the interface layer."

The Examiner asked the Applicants' attorney to respond within a time frame, to accept or reject these suggested amendments. Unable to confer with his client, the Applicants' attorney could not respond within the given time frame. Accordingly, this Office Action was mailed.

As explained below, claim 1 has been amended to recite the structure and claim 35 the method of coupling a heat-generating device to a bottom surface of the interface layer as suggested by the Examiner.

Rejections Under 35 U.S.C. §102(b)

Within the Office Action, claims 1-3, 5, 6, 8, 15, 16, 20, 30, 34-37, 39, 40, 42, 49, 59, and 62 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,810,077 to Nakamura. In light of the amendments made above, these rejections are now moot.

Nakamura is directed to a heat exchanger for a motor vehicle air conditioner evaporator. (Nakamura, Abstract) The heat exchanger in the exemplary embodiment of Figure 1 includes U-shaped flat tubes 5 in which a fluid flows. The flat tubes 5, referred to in the Office Action as an

interface layer, does not have a bottom surface to which a heat-generating device is attached.

The independent claim 1 is directed to a heat exchanger that includes a manifold layer coupled to an interface layer, and a heat-generating device coupled to a bottom surface of the interface layer. The manifold layer has a first plurality of openings for providing a cooling material to the heat exchanger and a second plurality of openings for removing the cooling material from the heat exchanger. The interface layer has a plurality of vertically stacked routes. Each route is for carrying the cooling material and extends from one of the first plurality of openings and terminates at a corresponding one of the second plurality of openings. A cross-section of the plurality of routes is substantially contained in a plane non-parallel to a heat-exchanging plane.

As described above, Nakamura does not disclose a heat-generating device coupled to a bottom surface of an interface layer, as recited in claim 1. For at least this reason, claim 1 is allowable over Nakamura.

Claims 2, 3, 5, 6, 8, 15, 16, 20, 30, and 34 all depend on claim 1. Accordingly, claims 2, 3, 5, 6, 8, 15, 16, 20, 30, and 34 are also all allowable as depending on an allowable base claim.

The independent claim 35 is directed to a method of forming a heat exchanger. The method includes, in relevant part, forming an interface layer having a plurality of vertically stacked routes that each extends from one of a first plurality of openings and terminates at a corresponding one of the a second plurality of openings. The method also includes coupling a heat-generating device to a bottom surface of the interface layer.

Nakamura does not disclose a method that includes coupling a heat-generating device to a bottom surface of an interface layer as recited in claim 35. For at least this reason, claim 35 is allowable over Nakamura.

Claims 36, 37, 39, 40, 42, 49, 59, and 62 all depend on claim 35. Accordingly, claims 36, 37, 39, 40, 42, 49, 59, and 62 are also all allowable as depending on an allowable base claim.

Rejections Under 35 U.S.C. § 103(a)

Within the Office Action, claims 7, 9-14, 17-19, 41, and 43-48 are rejected under 35 U.S.C. § 103(a) as obvious over Nakamura. This rejection is moot.

Claims 7, 9-14, and 17-19 all depend on claim 1. As explained above, claim 1 is allowable over Nakamura. Accordingly, claims 7, 9-14, and 17-19 are all also allowable as depending on an allowable base claim.

Claims 41 and 43-48 all depend on claim 35. As explained above, claim 35 is allowable over Nakamura. Accordingly, claims 41 and 43-48 are all also allowable as depending on an allowable base claim.

Within the Office Action, claim 33 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakamura in view of U.S. Patent No. 5,564,497 to Fukuoka et al. This rejection is moot.

Claim 33 depends on claim 1. As explained above, claim 1 is allowable over Nakamura at least because Nakamura does not disclose a heat-generating device coupled to a bottom surface of an interface layer, as recited in claim 1. Fukuoka does not disclose this element either. Accordingly, claim 1 is allowable over Nakamura, Fukuoka, and their combination, and claim 33 is allowable as depending on an allowable base claim.

Within the Office Action, claim 64 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakamura in view of U.S. Patent No. 5,274,920 to Mathews. This rejection is moot.

Claim 64 depends on claim 35. As explained above, claim 35 is allowable over Nakamura at least because Nakamura does not disclose coupling a heat-generating device to a bottom surface of an interface layer, as recited in claim 35. Mathews does not disclose this element either. Accordingly, claim 35 is allowable over Nakamura, Mathews, and their combination, and claim 64 is allowable as depending on an allowable base claim.

Within the Office Action, claim 65 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakamura in view of U.S. Patent No. 6,477,045 to Wang. This rejection is moot.

Claim 65 depends on claim 35. As explained above, claim 35 is allowable over Nakamura at least because Nakamura does not disclose coupling a heat-generating device to a bottom surface of an interface layer, as recited in claim 35. Wang does not disclose this element

either. Accordingly, claim 35 is allowable over Nakamura, Wang, and their combination, and claim 65 is allowable as depending on an allowable base claim.

Allowable Subject matter

Within the Office Action, claims 21-24, 27-29, 50-53, 56-58, and 63 are objected to as being dependent upon a rejected base claim. It is stated that each of these claims would be allowable if rewritten in independent form to include the limitations of the corresponding base claim and any intervening claims.

Claim 21 has been amended to recite all of the limitations of claim 1, the only claim on which it depends, as claim 1 read before this amendment. Accordingly, claim 21 is now allowable. Claims 22-24 all depend on claim 21 and are thus all allowable as depending on an allowable base claim.

Claim 27 has been canceled. Claims 28 and 29 have both been amended to depend on claim 1. As explained above, claim 1 is allowable. Accordingly, claims 28 and 29 are also both allowable as depending on an allowable base claim.

Claim 50 has been amended to recite all of the limitations of claim 35, the only claim on which it depends, as claim 35 read before this amendment. Accordingly, claim 50 is now allowable. Claims 51-53 all depend on claim 35 and are thus all allowable as depending on an allowable base claim.

Claim 56 has been canceled. Claims 57, 58, and 63 either have been amended to or already depend on claim 35. As explained above, claim 35 is allowable. Accordingly, claims 57, 58, and 63 are also all allowable as depending on an allowable base claim.

Consideration of Information Disclosure Statements

The Applicants respectfully ask the Examiner to consider the following information disclosure statements and then sign, initial and return copies of them for the Applicants' records:

- Form PTO-1449, filed March 4, 2004
- Form PTO-1449, filed August 31, 2004


- EFS ID # 76775, filed January 26, 2005
- EFS ID # 77189, filed February 1, 2005
- EFS ID # 83392, filed May 2, 2005
- Form PTO-1449, filed March 13, 2006

CONCLUSION

For the reasons given above, the Applicant respectfully submit that claims 1-3, 5-24, 28-30, 33-37, 39-53, 57-59, and 62-65 are now in a condition for allowance, and allowance at an early date would be appreciated. If the Examiner has any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 to discuss them so that any outstanding issues can be expeditiously resolved.

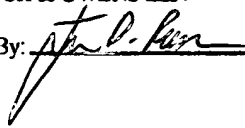
Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: 7-6-06

By: 
Thomas B. Haverstock
Reg. No. 32,571
Attorney Applicants

CERTIFICATE OF MAILING (37 CFR § 1.8(a))
I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450

HAVERSTOCK & OWENS LLP.

Date: 7-7-06 By: 

BEST AVAILABLE COPY